A Melting Pot of Medical Education: Challenges, solutions, and opportunities for improving trainee feedback and education in the ED

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KEYWORDS: Emergency medicine, medical education, educational feedback

INTRODUCTION

It is 6 p.m. on a Monday evening and you are a second-year Ob/Gyn resident at Women & Infants Hospital starting your shift. Following sign-out, you head down to the Emergency Department (ED). The electronic patient board is full and 20 patients are in the waiting room. Your supervising faculty includes two attending Ob/Gyn physicians, a nurse midwife, and a nurse practitioner. Your first-year colleague and a visiting Emergency Medicine resident are already hard at work. Additionally, there are three third-year Ob/Gyn clerkship medical students, one visiting fourth-year medical student, and a nurse practitioner student. In such a busy, high acuity, rapid turnover environment the question becomes: How will each of these learners receive the relevant education for their level of training? How will timely and comprehensive patient care be maintained? Recent research tells us that in the absence of adequate feedback "efficient learning is impossible, and improvement only minimal, even for a highly motivated subject."[1] However, in this time constrained, unpredictable environment, how can proper feedback be integrated? There are very few dedicated women's only Emergency Departments in the United States; however, parallels can be drawn to the clinical and educational environment in more traditional Emergency Medicine (EM) programs. The aim of our paper is to explore the unique nature of education in a highly specialized ED, highlighting the challenges of feedback and learning in this environment, and to provide potential opportunities for educational growth without compromising patient care.

EDUCATIONAL OPPORTUNITIES

The ED provides unique exposure to a host of educational opportunities. Students participating in an EM rotation have a higher level of involvement in the initial assessment and management of patients and are exposed to a great depth and variety of patient complaints when compared to their internal medicine counterparts.[2] As represented by Edgar Dale's Cone of Learning, students who are more engaged in a hands-on learning environment gain and retain more in their experience.[3] Giving students an ability to see the whole scope of medicine and having them be at the forefront of patient evaluation provides an opportunity to build their clinical decision-making skills. Additionally, within the ED, medical, nursing and allied health staff of varying levels of experience and expertise work alongside one another.[4] This allows learners to be exposed to an invaluable variety of lenses for clinical situations. Basic EM knowledge and skills learned throughout the clinical years provide a sound foundation for medical students, regardless of their intended career path.[5]

CHALLENGES

Despite the many advantages of education in the ED, there are perceived pitfalls that may challenge optimal and effective teaching and feedback experiences. Emergency physicians are constantly multi-tasking with an average of 10 interruptions per hour. The brisk pace and unpredictable variability in workload can limit extended case discussions and sit-down rounds which may impact teaching and feedback.[6] Additionally, educators are challenged to adapt to trainees coming from different educational levels and backgrounds with inconsistent longitudinal exposure. Pressures of teaching around the clock while maintaining tolerable patient wait times in a typically physically crowded space pose further hurdles.[7] Increasing ED volumes and overcrowding limit the available time of faculty and residents to engage in frequent, timely and substantive feedback. This in turn may lead residents to believe that training programs emphasize service over education.[8-9]

EFFECTIVE STRATEGIES

So, how can we overcome the challenges of education in the ED setting? In order to create noteworthy interventions for feedback and teaching, we must ask: What teaching qualities are most valuable in this environment and does feedback really matter? Previous research shows that effective teaching in medicine requires flexibility, energy, and commitment amidst a busy background of clinical care.[10] Thurgur et al surveyed medical students and residents in the ED to assess what learners want from their teachers. Learners

vocalized a preference for teachers who "give feedback," "take time" and "use the teachable moment." Students and residents surveyed were sympathetic to the challenges faced by their ED teachers and felt that providing the educators resources and methods for teaching in this busy setting would be beneficial.[11] Students further recognize feedback as a core component of medical education and identify it as a strong indicator of clerkship quality.[1] A study by Torre et al demonstrated that providing feedback in various forms was connected to students' perceptions of high quality teaching during their internal medicine rotation.[12] Feedback has been shown to improve clinical performance, clinician self-assessment accuracy, and patient satisfaction.[13-15]

PRECEPTOR MODEL

The answers to ensuring a robust educational environment in the ED therefore lie in high quality educators with tools to enhance learning with limited time, and to ensure effective feedback. There are many proposed tools to elevate the learning experience, but perhaps the most applicable to the ED setting is the One-minute-preceptor (OMP) model. The OMP incorporates the five-step microskills model of learner-centered clinical teaching initially described by Neher and colleagues.[16] This enables high impact clinical teaching alongside efficient and comprehensive patient care. Within this model, the educator uses a series of five steps to assess and teach the learner, and to provide directed feedback. The OMP begins with a specific patient presentation. In step 1,

the learner is asked to commit to a direction, with the question often posed: What do you think is going on with this patient? In step 2, the learner is asked for supporting evidence for the differential diagnosis based on details from the history and physical, and asked to propose further diagnostics needed. Step 3 involves a moment for the educator to teach a specific point on the case presented. In step 4, the educator provides feedback on the learner's assessment of the patient and thet impact on the patient's care. Lastly, step 5 is an opportunity for the educator to correct any mistakes and direct the learner on suggested improvements. **Table 1**, adapted from Parrot et al, provides an example of the use of the OMP model with a common clinical scenario in our ED setting. Note that the microskills do not have to be used in order, and incorporation of some skills more than once may enhance the learning experience.[17]

In this scenario, a third-year medical student is presenting a 25-year-old female with right lower quadrant abdominal pain, vaginal spotting, nausea and emesis.

In this clinical scenario, the five-step microskills safely permits high-yield education in the acute setting. This model can be utilized by all physician and non-physician providers, promoting a collaborative teaching model and facilitates a team-based interdisciplinary approach to each patient. Arming our educators in the ED setting with this and similar tools will have a profound impact on learner experience and education.

Although the OMP model incorporates feedback into each patient encounter, providing feedback to medical students

Table 1. The five-step microskills model of clinical teaching.

Preceptor:	What do you think is going on with this patient?	Microskill #1: Get a commitment
Student:	I think that she may have appendicitis.	
Preceptor:	What makes you think that she has appendicitis?	Microskill #2: Probe for supporting evidence
Student:	She has right lower abdominal pain, no appetite and emesis for the past 24 hours. On exam her heart rate is elevated to 125 bpm and she has rebound and guarding on abdominal exam, worse in the right lower quadrant.	
Preceptor:	That is a good start. I am concerned about appendicitis as well. We also need to consider that she may be pregnant. It is important to consider pregnancy in all women of reporductive age. This patient's symptoms may also represent a ruptured ectopic pregnancy. What are the next steps for this patient?	Microskill #3: Teach general rules Microskill #1: Get a committment
Student:	I will find out if she has already had a pregnancy test performed. I think that we should send off a CBC, place an IV and consider a CT scan.	
Preceptor:	I agree, a CBC will be important to see if the patient is anemic or has an elevated WBC. Obtaining IV access in someone who may become more hemodynamically unstable is a very important initial step. We should also send off a creatinine in case we need to send the patient for a CT scan, and a type & screen in case the patient needs to go to the OR. We will need to determine if the patient is pregnant or not before we order a CT scan. We would like to avoid excessive radiation exposure during pregnancy if possible, and may be able to start with an ultrasound for diagnostic purposes. You can read more about diagnositc imaging guidelines during pregnancy in the ACOG committee opinion.	Microskill #4: Reinforce what was done right Microskill #3: Teach general rules Microskill #5: Correct mistakes

Adapted from Parrot, et al, Family Medicine, 2006

and residents in a variety of ways improves satisfaction with the educational experience.[12] Ideally, feedback is incorporated into medical student and resident rotations in a formal process at both mid-point and at the end of the rotation experience. These sessions benefit from being planned, and incorporates findings from multiple specific patient encounters. On a day-to-day basis in the ED setting, successful feedback takes place "on the fly." As a positive, this real-time feedback occurs very soon after a specific patient encounter and allows for the learner and educator to engage on three points: what went well, what could have gone better, and how to improve. A downside of this feedback experience is that many learners do not recognize that they are receiving feedback in these brief, unplanned sessions.[19]

So, how can this be improved? In a randomized, controlled study Yarris et al evaluated a feedback curriculum with training sessions for both faculty and residents in addition to a feedback card system designed to create specific, timely, face-to-face feedback. The card (**Table 2**) carried by the resident included areas for self and faculty evaluation and one

targeted area for improvement. A reference was also provided to faculty on performance expectations for each level of training. The residents were given primary responsibility for initiating the feedback process and asked to turn in one card per shift for at least two-thirds of their shifts. A control group continued with their current method of feedback. The intervention was noted to significantly improve overall resident satisfaction with feedback. Additionally, significant improvement was noted with the overall quality, amount, and timeliness of feedback.[20] This strategy engages learners in feedback which can improve teaching perception and clinical performance. Implementing similar methods into our fast-paced learning environment has the potential to improve the learner's experience, reduce the perceived burden of service while maintaining an emphasis on education.

CONCLUSIONS

Academic medicine in the ED setting is unique. It is truly a melting pot of educators and learners from all backgrounds at various stages in their careers. This, coupled with a wide range of patient acuity, high clinical demands, and impressive breadth and depth of pathology, make the ED at times a challenging teaching and learning environment. However, while the ever changing landscape of patient care demands and growing educational needs are daunting, we believe that the above proposed strategies can be employed to overcome perceived barriers in education and feedback in our unique setting. The OMP model and feedback card system are both simple to remember, and easy to apply in the acute-care setting. In our women's only ED, all providers can employ these strategies to empower learners and create an optimal educational environment. In doing so, we embrace the challenge of providing excellent care to our patients while ensuring a positive educational experience for our future generation of providers.

Table 2. Feedback Card

Date	
Resident	
Attending	
Resident Self- Evaluation	
What went well today?	
What can I improve?	
Faculty Evaluation	
Please discuss with the resident or medical student your impression of the strengths of their performance in the ED today and areas of improvement. Do you agree with their self-evaluation?	
One specific learning issue or suggestion for improvement	
Other comments	

Adapted from Yarris, et al, Academy Emergency Medicine, 2011

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